

## Deception in 3-Year-Olds

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Children's ability to deceive was examined in order to determine whether they are able to hide their emotional expression intentionally. Three-year-olds were instructed not to peek at a toy while the experimenter left the room. When asked, the great majority either denied that they peeked or would not answer the question. Facial and bodily activity did not differentiate the deceivers from the truth tellers. Boys were more likely than girls to admit their transgression. These results indicate that very young children have begun to learn how to mask their emotional expressions and support the role of socialization in this process.

Deception is a frequent activity in the life of individuals. It may take the simple form of agreeing with someone with whose opinion, in fact, we do not agree (e.g., saying we like the color of a tie when we do not) or other forms such as lying about a serious transgression. Deception can be directed toward the self as well, as in the case where we deny that we have a certain feeling when, in fact, we do feel this way (Lewis, *in press*). Moreover, cultures may have display rules that encourage masking negative emotion (Ekman, Friesen, & Ellsworth, 1972; Izard, 1977). Deception can be observed in all age groups, but the questions of how old a child must be in order to be able to deceive and how well a child can succeed in the deception are largely unexplored.

Anecdotal evidence suggests that very young children may practice deception, for example, young children who deny that they have eaten a cookie when there are signs of the cookie on their mouths. Many other examples of deception exist as well. For example, the 20-month-old child who cries when she scrapes her hand, but only when her mother is present, or the 24-month-old child who knows his name, but when asked what it is playfully responds, "Mommy." In all these examples, the children may respond with verbal or facial-vocal behaviors (or both) that do not reflect what they know to be true. Could these examples reflect the beginning of the ability to deceive? In order to answer this question, it is necessary to be able to infer that there is a known correct response and that the child's behavior is an attempt to hide or avoid that response.

Given that many examples of deception-like behavior appear in the young child, it is surprising that there is very little systematic research on this topic, both in terms of the development of deception and of the individual differences in its use. There are

some studies on children's ability to detect deception (DePaulo, Jordan, Irvine, & Laser, 1982; Feldman, Devin-Sheeham, & Allen, 1978; Morency & Krauss, 1982) and children's ability to deceive when instructed to do so (Feldman, Jenkins, & Popoola, 1979; Feldman & White, 1980), however, most of this work has involved children who are 6 years or older. Moreover, little work exists regarding children's ability to hide or mask their emotions or to be deceptive in more naturalistic situations at any age (Saarni, 1984). It has been assumed that both socialization factors and increased cognitive capacity enable children to alter their facial expressions and verbal and nonverbal behaviors in order to mask their underlying emotional state (Ekman et al., 1972; Lewis & Michalson, 1985; Saarni, 1979). The study of deception bears on the development of these capacities.

Saarni (1984) attempted to observe directly developmental differences in children's abilities to use deception in a life-like situation. First, third and fifth graders were placed in a situation where their expectations for a desirable toy were not met. After receiving a desirable gift and the promise of another such gift, the children were given an undesirable gift. The children's facial expression and nonverbal behavior were coded. With increasing age, children demonstrated an increased ability to mask their internal states, and girls showed this ability earlier and to a greater extent than boys. These findings are difficult to interpret, however, because the regulation and disassociation of expressive behavior from the internal state must be inferred. That is, it is unknown whether the children, in fact, were disappointed in not receiving the promised gift and, therefore, used deception to mask their disappointment.

Although the study of children's use of deception is important for our understanding of the socialization of emotion and the relationship between internal states and external expressions, there are few studies on this topic. Those few that exist provide us with limited information, because the children in them were required to play act, and, thus, were not studied directly in terms of the use of deception in more natural situations. The present study represents an attempt to observe young children engaging in deception under the condition that it is they who chose to deceive. In order to create a natural situation that might induce children to deceive, 3-year-old children were placed in a situation where they were prohibited from looking at a toy. On violating the prohibition, they were asked about

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their behavior. It was expected that, of the children who violated the rule, some would admit and some would deny their transgression (deception). By observing their actual behavior, we need not infer deception. Moreover, the facial expression of the children was studied prior to as well as after they were asked if they had peeked. In this way, one can judge their emotional expressions to their transgression as well as whether the expressions were a consequence of their denial or admission. Therefore, this study focuses on (a) whether young children engage in both verbal and behavioral deception and (b) how well they deceive by masking their expression.

## Method

### Subjects

Thirty-three subjects, 15 boys and 18 girls, between the ages of 33 and 37 months ( $M$  age = 35.4 months) were seen in the laboratory. The subjects were from middle- and upper-class Caucasian families and had been seen previously in the same laboratory at 5, 13, and 22 months of age. Data from 2 additional subjects (1 boy and 1 girl) were omitted from the analysis because they refused to cooperate with the procedure.

### Procedure

Subjects were seated in a chair with their back to a small table and told that the experimenter was going to put out a surprise toy. The experimenter then set out a play "zoo."<sup>1</sup> The children were instructed not to peek and that they could play with the toy when the experimenter returned. The experimenter then left the room. The mother was seated with her back to her child, filling out a questionnaire. The children were observed and videotaped through a one-way mirror. The experimenter returned to the room when the children either peeked at the toy or when 5 min had passed. The experimenter stood in front and to the right of the child and stared with a neutral expression for 5 s, then asked the child, "Did you peek?" If the subject did not respond, she or he was asked again. No subject who did not respond to the first question responded to the second. After waiting 5 s, the experimenter invited the child to play with the toy and reassured him or her that it was all right to peek.<sup>2</sup>

The verbal and nonverbal responses of the subjects in response to the experimenter's stare and to the question "Did you peek?" were coded from the videotape recording of the session. Verbal responses fell into three categories: (a) saying "yes" or shaking the head "yes"; (b) saying "no" or shaking the head "no"; and (c) giving no verbal or nonverbal response.

A second coder experienced in coding facial expressions using the MAX system (Izard & Dougherty, 1982) also coded facial expressions. Tapes were viewed in both fast and slow motion, and each facial expression was noted as it occurred. Four expressions that occurred with any frequency were coded: *smiling*, *gaze avert*, *sober mouth*, and *relaxed-interest mouth*. Also coded was *nervous touching*, which included movement of the hands to touch hair, clothing, face, or other body parts, *startle response*, measured by abrupt body movement with or without breath inhalation, and *body inhibition*, measured by sudden cessation in ongoing activity. Of these three body activities, only nervous touching occurred with sufficient frequency to be analyzed. A second coder scored 10 tapes, and the interobserver reliabilities (agreement/agreement + disagreement) were quite high for facial and bodily activities (93%–98% agreement). The scores ranged from 0 to 2 for the positive behaviors and 0 to 3 for the negative behaviors. Mean scores were obtained by dividing the number of positive behaviors by 2 for the mean positive score and the number of negative behaviors by 3 for the mean negative score.

## Results

### Verbal Response

Subjects were asked whether they had looked at the toy when the experimenter left the room. Four of the 33 subjects did not look, indicating that most children this age will violate such a rule if left alone (sign test,  $p < .001$ ). Of the 29 subjects who violated the rule, 38% said "yes" they did look, 38% said "no" they did not look, and 24% gave no verbal response. The four subjects who did not look said "no." Thus, only 38% of the 3-year-old children were willing to admit to the transgression that they had just performed.<sup>3</sup>

Sex differences in verbal response can be observed, with boys more likely than girls to admit to their transgression. Of the children who said "no," 73% were girls; of those who did not verbally respond, 71% were girls, whereas of those who said "yes," 82% were boys. Whereas 64% of the boys admitted to their transgression (said "yes"), only 13% of girls did so (Fischer's Exact Probability test,  $p < .04$ ). Moreover, girls gave no response more often than boys (28% and 13%, respectively; Fischer's Exact Probability test,  $p < .05$ ). Overall, boys were more truthful (saying "yes" rather than "no" or giving no response) than girls (Fischer's Exact Probability test,  $p < .03$ ).

### Facial and Bodily Response

The facial and bodily response data are presented in Table 1. The data are presented as the percentage of subjects exhibiting individual behaviors and the mean score of the positive and negative behaviors for the four groups of verbal replies by condition as well as by change in response over the two conditions.

We conducted a repeated measures analysis of variance (ANOVA) with two within-subject factors (condition: stare vs. ask; affect: positive vs. negative) and a between-subject factor (group: no response, no, yes, and no peek). There were no main effects for group and condition, although there was a significant affect effect,  $F(1, 28) = 11.86$ ,  $p < .002$ . Over conditions and groups, the mean of the negative behaviors was greater than the mean of the positive behaviors. There was a significant Group  $\times$  Condition effect,  $F(3, 28) = 3.98$ ,  $p < .02$ . The Group  $\times$  Condition effect indicates that the groups differed in their overall responses over the stare and ask conditions. Although not significant,  $F(3, 28) = 1.44$ , the three-way interaction suggests that the groups differed in their positive behaviors over condition but not in their negative behaviors. Testing each affect separately revealed no changes over condition in the negative behaviors by group, however there were significant changes in the positive behaviors by group,  $F(3, 28) = 4.73$ ,  $p < .01$ . The no-response group showed a decrease (least significant difference [LSD],  $p < .05$ ), the "no" group showed an increase (LSD,  $p < .05$ ), and the "yes" and no-peek groups showed no change.

<sup>1</sup> Manufactured by Fisher-Price, 1984 (Copyright 916).

<sup>2</sup> Parents were debriefed and informed that the study was designed so that all subjects were expected to peek. Parents appeared satisfied that their children did not show any deviant behavior and all agreed to participate in a second study.

<sup>3</sup> It is difficult to assign a significance level to these data because it is not reasonable to give an equally likely probability to each of the three types of response. Thus, only descriptive data are presented here.

Table 1  
Facial Expression by Condition and Verbal Response

Condition	Subjects who peeked				Subjects who did not peek
	NR (n = 7)	No (n = 11)	Yes (n = 10)	Total (n = 28)	No (n = 4)
Stare condition					
Relaxed face	57.1	18.2	20.0	28.6	25.0
Smile	28.6	27.3	40.0	32.1	0.0
M positive behaviors	.429	.227	.300	.304	.125
Sober	42.9	27.3	30.0	32.1	50.0
Avert	100.0	81.8	60.0	78.6	75.0
Nervous touch	57.1	36.4	50.0	46.4	50.0
M negative behaviors	.667	.485	.467	.524	.583
	NR (n = 7)	No (n = 11)	Yes (n = 11)	Total (n = 29)	No (n = 4)
Question condition					
Relaxed face	28.6	45.5	9.1	27.6	25.0
Smile	14.3	54.5	54.5	44.8	0.0
M positive behaviors	.214	.500	.300	.362	.125
Sober	28.6	18.2	36.4	27.6	50.0
Avert	71.4	81.8	81.8	79.3	75.0
Nervous touch	71.4	45.5	36.4	48.3	50.0
M negative behaviors	.571	.485	.500	.511	.583
Percentage change over condition					
Relaxed face	-28.5	27.3	10.9	-1.0	0.0
Smile	-14.3	27.5	14.5	12.7	0.0
M positive behaviors	-.215	.279	.000	.051	.000
Sober	-14.3	9.1	6.4	-4.5	0.0
Nervous touch	14.3	9.1	13.6	1.9	0.0
Avert	-28.6	0.0	21.8	0.7	0.0
M negative behaviors	-.096	.000	-.003	-.013	.000

Note. NR = no response. Values represent percentages of subjects.

Given these overall differences, we next considered observation by condition and groups. In the *stare condition* when the experimenter looked at the child, children who transgressed (n = 28) showed more mean negative (.524) than positive (.304) behaviors (LSD,  $p < .05$ ).<sup>4</sup> Children who did not transgress showed a similar pattern (M positive = .125 vs. M negative = .583). Although children who peeked showed the same mean negative behavior as children who did not peek, the peekers showed greater mean positive behavior than the nonpeekers. For specific positive behaviors this was significant for smile face (test of proportion,  $p < .05$ ). There were no differences among the three groups of peekers, particular between those who peeked and lied and those who peeked and told the truth.

In the *question condition* the children who transgressed again showed more mean negative than positive behaviors (LSD,  $p < .05$ ). Children who did not transgress also showed this pattern. The children who transgressed showed more mean positive behavior than the children who did not transgress, although there was no difference in the mean of negative behaviors. Smiling behavior was greater for those subjects who transgressed than for those who did not (test of proportion,  $p < .05$ ). Among the children who transgressed, "no" subjects showed the most mean positive behavior and the no-response subjects showed the

least (LSD,  $p < .05$ ). Although the deceivers showed a larger mean positive behavior than the truth tellers, this difference was not significant (LSD,  $p < .10$ ). There were no differences among groups for the mean negative behaviors.

Of interest is the examination of the 11 subjects who said "no" they did not peek but did and the four subjects who said "no" and did not peek. The truthful "no" subjects showed smaller mean positive behaviors than the deceivers (LSD,  $p < .05$ ); specifically, they smiled less ( $Z = 1.90, p < .06$ ). There was no difference in the mean negative behaviors between these two groups.

#### Change in Behavior

These scores reflect, in part, the effect of deceiving, telling the truth, or not answering the question posed by the experimenter. There were no differences in either the mean positive or negative behaviors when subjects who peeked were compared with those who did not peek, partly because the three groups of subjects

<sup>4</sup> One subject's tape was unavailable for measurement during the stare condition.

who transgressed differed markedly in the degree of positive behavior change that they expressed. Subjects who transgressed and said "no" showed more mean positive behavior change than the other two groups. Although the mean of the positive behaviors increased for the "no" group they declined for the no-response group (LSD,  $p < .01$ ) and stayed the same for the "yes" group. The comparison of deceivers and truth tellers was also significant (LSD,  $p < .05$ ). A comparison between the two "no" groups revealed more mean increase in positive behavior for the deceivers than for those telling the truth (Fischer's Exact Probability test,  $p < .10$ ).

### Discussion

When 3-year-old children transgress a rule and are asked about it, they are capable of deception. Only 38% in this study admitted to looking at a toy that they had been instructed not to look at. By 3 years of age, children do use verbal deception. Thus, we have some evidence to support the hypothesis that deception strategies are adopted at early ages. This is not surprising given early socialization factors. Although parents tell their children not to lie, they also inform them both directly and indirectly that deception is socially appropriate. For example, children are directly informed to pretend that they like a gift even though they do not ("Remember to thank grandmother for the sweater even though you wanted a toy"). Indirectly, children watch the behaviors of others and observe the same type of behavior. For example, mother pretends that she is happy to see her neighbor, when immediately before the neighbor arrived she had expressed her desire not to see her.

Given these different and, at times, contradictory social messages, the task of the young child is to learn the rules of masking emotional expression. Why, then, do findings with children past 6 years indicate only moderate success in accomplishing this task? It may be because in previous studies the children were asked to *pretend* that they liked or did not like a drink. Play acting may require cognitive skills beyond those necessary for deception that make this experimental type of deception more difficult.<sup>5</sup> When experimental situations are used that are more naturalistic and are familiar to children in relation to their daily lives, children may show more competence.

Although almost all 3-year-olds succumb to the temptation to look when told not to, not all subjects do so. In this study, about 15% of the children did not peek, even after 5 min of being left alone in the room with an attractive toy. Individual differences in young children's ability to inhibit forbidden action may be a function of the cognitive strategy that they adopt while confronted with the transgression. For example, Mischel and Ebbesen (1970) reported that mental distraction is one of the strategies that leads to successful inhibition of action. Individual differences in resisting temptation may also reflect differences in socialization or in temperament. Socialization differences in response to inhibiting action have been discussed by many (e.g., Aronfreed, 1976; Parke & Slaby, 1983). In regard to temperament, Mowrer (1950) reported a study by Solomon where specific differences in puppy dogs' ability to inhibit a forbidden action were found. He claimed that these individual differences, at least in dogs, were related to biological rather than socialization differences because all of the animals were trained in exactly the same way. Further studies are required to

examine whether differences in cognitive ability, socialization, temperament, or a combination of these are related to individual differences in resisting temptation.

Given that young children transgress and are capable of verbal deception, how successful are they in masking their expressive behavior? One way to answer this is by observing their facial and bodily behavior. Facial differences that occurred when the subjects were questioned appear to covary with the nature of their verbal response. The differences among the groups, as seen in the change scores, reveal that the truth tellers (children who said "yes" when they did peek and those who said "no" when they did not peek) showed little behavior change when they responded verbally. On the other hand, the deceivers showed change in their positive behavior; the children who said "no" and peeked showed an increase in smiling and relaxed face, and the no-response children showed a decrease in these behaviors and an increase in nervous touching. These results suggest that for the children who deceive, verbal and facial deception are organized and integrated. That is, these children hide their verbal deception with increased positive rather than negative behaviors. The no-response children also failed to admit their transgression—however, they were less organized and integrated. First, they could not directly lie (i.e., say "no") but chose not to answer the question. Second, their facial/bodily responses showed an increase in nervous touching. In both ways, then, their deception was less developed than that of the children who said "no." These children may represent either the transitional phase from truth telling to deception or may be poor deceivers (see Saarni, 1979). Only longitudinal investigation can reveal whether deception ability passes through such phases.

Exact analysis of behavior allows us in retrospect to observe differences in those 3-year-olds who deceive in comparison with those who tell the truth. However, the analysis is retrospective, that is, we know already who the deceivers are and look for differences. Given that it is an increase in mean positive and (not negative) behaviors that differentiates the groups, how would the naive observer react to these facial and bodily changes, and are observers able to discriminate these subtle cues? Sixty adult subjects, varying in age from 21 to 25 years, were asked to view the videotapes in order to determine whether they could identify the subjects who told the truth. Only those segments of the tape in which the subject was asked about peeking were presented (approximately 5 s), one at a time, to the adults. The adults had to indicate whether they thought the particular child peeked or did not peek or that they did not know if the child peeked. Because children shook their heads as they gave their verbal response it was not possible to include those subjects who admitted to their transgression, because it would make little sense for children to say "yes" to something they did not do. Therefore, only subjects who said "no" or gave no response were rated. There were 15 subjects who said "no" (11 who had peeked and 4 who had not) and 7 subjects who gave no response. The adult judges were not able to differentiate between the groups, particularly between subjects who said "no" and peeked and subjects who said "no" and did not peek as well

<sup>5</sup> Play acting deception is a complex skill in the manner of a meta-decept skill, whereas deception itself is a simple skill; that is, play acting a deception requires a "play acting of a play acting."

as between those who said "no" and those who gave no response. Thus, although the number of subjects was few, the adult judges did not appear to be able to discriminate the children on the basis of their behavioral differences during the questioning period, even though some differences exist when careful measurement is applied. Such findings do not disagree with the recent work by Ekman, Friesen, and O'Sullivan (1988), who found that deceptive smiling can be detected. In their study, observers who were trained on facial coding were used, and, as such, this situation does not relate to naive observers looking at facial behavior.

The adult judges in this study were not able to see the changes in behavior from the stare to questioning conditions, and this change may be what is important for more accurate judgments. Just looking at children's response to questioning may not be sufficient for making accurate judgements. Even in the question condition, however, the children differ in their responses. Alternatively, the judges may have been able to observe the differences in expression but interpreted them differently. If the adults believed that smiling and relaxed face do not reference guilt, their judgment would result in the findings obtained. Smiling and relaxed face are not usually believed to reference guilt (Izard, 1977).

Sex differences indicate that girls show more verbal deception than boys, a finding consistent with other studies using facial expression (Feldman & White, 1980; Saarni, 1984). Specifically, females use deception earlier, and their use of deception is less detectable than in males. Why should such group differences appear? In the present study, girls show no more transgression than boys, yet they are significantly more apt to deny their transgression than boys. There appear to be at least two possible reasons for this. First, females may be more ashamed/embarrassed about their transgression than males and, thus, would be less likely to admit the transgression to the experimenter. H. Lewis (1971) reported that females show more shame than males in interpersonal relationships, and Lewis, Sullivan, Stanger, & Weiss (1989) have shown that 2-year-old girls show more embarrassment than boys. Such findings indicate sex differences in some emotional responses and, thus, may contribute to sex differences in the likelihood of admitting to transgression. If this difference in the emotional response to transgression is true, it remains a puzzle why there are no differences in the likelihood of violating a rule, because the violation of the rule should evoke more upset for females than for males. In fact, although not significant, there were three females to one male who did not peek. Thus, there is some tendency for females not to transgress as much as males.

A second reason for these sex differences is possible, one which may have more to do with social pressure than with emotional differences. It may be the case that females, being more interested in social approval (Block, 1978; Huston, 1983), are less likely to admit to a transgression because such an admission might result in the displeasure of the adult experimenter. In this case, sex differences in the need for social desirability and, perhaps, the fear of punishment are what motivate the female children's deception. Why sex differences in deception occur

remains an important question and one related to the socialization of children within the first 3 years of life.

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